

## Program Overview

The Master of Science (M.S.) degree with a major in Exercise Science concentration in Health and Rehabilitation Sciences is a multi-disciplinary program designed to prepare graduates for multiple health-promotion careers. The program focuses on understand and integrating diverse health and rehabilitation research to inform evidence-based practice. This degree supports current allied health professionals and assists recent bachelor's degree graduates with advanced skills to seek admission to competitive health and rehabilitation professional schools.

## Application Requirements

The items listed below are required for admission consideration for applicable semesters of entry during the current academic year. Submission instructions, additional details, and changes to admission requirements for semesters other than the current academic year can be found on The Graduate College's website (<http://www.gradcollege.txstate.edu>). International students should view the International Admission Documents page (<http://mycatalog.txstate.edu/graduate/admission-documents/international/>) for additional requirements.

- completed online application
  - \$55 nonrefundable application fee
- or
- \$90 nonrefundable application fee for applications with international credentials
  - baccalaureate degree from a regionally accredited university (Non-U.S. degrees must be equivalent to a four-year U.S. Bachelor's degree. In most cases, three-year degrees are not considered. Visit our International FAQs (<https://www.gradcollege.txst.edu/international/faqs.html>) for more information.)
  - official transcripts from **each institution** where course credit was granted
  - a 2.75 overall GPA or a 2.75 GPA in the last 60 hours of undergraduate course work (plus any completed graduate courses)
  - background course work in at least 6 hours of exercise science undergraduate credit hours. Students who do not have these hours may be required to complete leveling courses
  - GRE not required
  - resume/CV
  - statement of purpose (approximately 500 words, typed and double-spaced) addressing the following:
    - professional goals
    - reasons for pursuing education and training in exercise science
    - summary of major strengths and weaknesses with respect to being admitted into the program
    - experiences and/or research interests that may contribute to the program
  - two letters of recommendation (including at least one academic reference - academic letters are to be provided by current/former professors) regarding professional competence and character

### Approved English Proficiency Exam Scores

Applicants are required to submit an approved English proficiency exam score that meets the minimum program requirements below

unless they have earned a bachelor's degree or higher from a regionally accredited U.S. institution or the equivalent from a country on our exempt countries list (<http://www.gradcollege.txstate.edu/international/language.html#wave>).

- official TOEFL iBT scores required with a 78 overall
- official PTE scores required with a 52
- official IELTS (academic) scores required with a 6.5 overall and minimum individual module scores of 6.0
- official Duolingo Scores required with a 110 overall
- official TOEFL Essentials scores required with an 8.5 overall

This program does **not** offer admission if the scores above are not met.

## Degree Requirements

The Master of Science (M.S.) degree with a major in Exercise Science concentration in Health and Rehabilitation Sciences requires 36 semester credit hours, including an independent study.

As background prerequisites, an Exercise Science major is expected to have a minimum of 6 semester hours of exercise science course work on the bachelor's degree. Students who do not have these hours may be required to complete leveling courses.

## Course Requirements

Code	Title	Hours
<b>Required Courses</b>		
ESS 5304	Motor Behavior	3
ESS 5309	Biomechanics for Exercise & Sports Science	3
ESS 5346	Research Methods in Health and Human Performance	3
ESS 5347	Independent Study in Exercise Science (Taken twice at the end of a student's degree plan as a culminating experience)	6
ESS 5356	Applied Statistics in Health and Human Performance	3
Choose one of the following:		3
ESS 5306	Advanced Exercise Physiology	
ESS 5310	Cardiopulmonary Exercise Physiology	
ESS 5311	Applied Neuromuscular and Skeletal Muscle Physiology	
<b>Concentration Courses</b>		
PH 5321	Advanced Health Behavior Theory	3
ESS 5313	Proprioception and Neuromuscular Control in Rehabilitation	3
ESS 5314	Biomechanics of Musculoskeletal Injury	3
<b>Prescribed Electives</b>		
Choose two of the following:		6
ESS 5110	Research Seminar (May be repetitive twice)	
ESS 5305	Advanced Fitness Assessment and Exercise Prescription	
ESS 5306	Advanced Exercise Physiology	
ESS 5307	Advanced Resistance Training and Conditioning	
ESS 5308	Physical Activity, Disease Prevention and Treatment	
ESS 5310	Cardiopulmonary Exercise Physiology	

ESS 5311	Applied Neuromuscular and Skeletal Muscle Physiology
ESS 5312	Applied Exercise Metabolism
ESS 5322	Inclusion and Diversity in Physical Activity and Sport
ESS 5327	Application of Strength and Conditioning Principles
ESS 5328	Principles of Endurance Training
ESS 5344	Science of Sport Coaching and Teaching
ESS 5398	Internship in Exercise and Sports Science
ESS 5698	Internship in Exercise and Sports Science
NUTR 5364	The Science of Nutrition and Exercise
PH 5320	Foundations of Public Health
PH 5331	Health Disparities
PSY 5335	Foundations of Health Psychology
REC 5325	Philosophical Foundations of Recreational Therapy
<b>Total Hours</b>	<b>36</b>

## Comprehensive Examination Requirement

The comprehensive take-home exam is an independent, individual assignment where students will apply scholarly principles from at least two subdisciplines within Exercise Science for practical use. The final product should demonstrate the student's mastery of content in two subdisciplines and inform practitioners or organizations regarding the efficacy of a set of strategies, lessons, or a program. Examples include creating an innovative program related to exercise and sports science (e.g., training or fitness program, rehabilitation program), creating a series of teaching lessons for a specific group of students, conducting a program evaluation, creating a website to inform practitioners on a topic related to exercise and sports science, or writing a paper that incorporates practical recommendations based on literature in the field. The oral defense could consist of a question and answer session or a concise presentation followed by questions. If the final product and/or oral defense does not meet requirements, graduation may be delayed until the appropriate work is completed.

Students who do not successfully complete the requirements for the degree within the timelines specified will be dismissed from the program.

Master's level courses in Health and Human Performance: ESS

## Courses Offered

### Exercise Science Specialization (ESS)

#### ESS 5101. Graduate Assistant Development.

This course is required of all graduate teaching and instructional assistants in the department. This course provides regular in-service and planned periodic evaluations of instructional and professional responsibilities. This course does not earn graduate degree credit.

**1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.**

**Course Attribute(s):** Graduate Assistantship|Exclude from Graduate GPA

**Grade Mode:** Leveling/Assistantships

#### ESS 5110. Research Seminar.

The focus of this course engages students in research and professional development in Exercise and Sports Science. This seminar will allow students to gain exposure to a variety of scholarly activities in an interdisciplinary setting.

**1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.**

**Course Attribute(s):** Exclude from 3-peat Processing

**Grade Mode:** Standard Letter

#### ESS 5199B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

**1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.**

**Grade Mode:** Credit/No Credit

#### ESS 5201. Graduate Assistant Development.

This course is required of all graduate teaching and instructional assistants in the department. This course provides regular in-service and planned periodic evaluations of instructional and professional responsibilities. This course does not earn graduate degree credit.

**2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.**

**Course Attribute(s):** Graduate Assistantship|Exclude from Graduate GPA

**Grade Mode:** Leveling/Assistantships

#### ESS 5299B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

**2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Credit/No Credit

#### ESS 5304. Motor Behavior.

This course is designed to provide students the foundation for understanding the principles involved in enhancing motor control, motor development, and motor skill acquisition. This includes the physiological, neurological, and psychological factors affecting motor behavior and performance. Inquiry is made into the various motor behavior theories and concepts.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

#### ESS 5305. Advanced Fitness Assessment and Exercise Prescription.

This course provides an intensive study of current scientifically based exercise testing and prescription procedures. Students will learn how to evaluate fitness and prescribe exercise through laboratory experiences.

**3 Credit Hours. 2 Lecture Contact Hours. 1 Lab Contact Hour.**

**Grade Mode:** Standard Letter

**ESS 5306. Advanced Exercise Physiology.**

This advanced course will provide students with a thorough understanding of the acute responses to exercise and the physiological adaptations that occur in response to exercise training. Additional topics to be covered include environmental influences, aging, and sex differences.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5307. Advanced Resistance Training and Conditioning.**

This course will include the development, instruction, and evaluation of resistance training exercises and programs for diverse populations and settings. Physiological and mechanical principles related to resistance training will be applied to study human performance, injury prevention, and rehabilitation.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5308. Physical Activity, Disease Prevention and Treatment.**

This course will provide students with opportunities to examine the role of physical inactivity in the development of chronic diseases and the benefits of activity in prevention efforts. A special emphasis will be placed on activity assessment and intervention research.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5309. Biomechanics for Exercise & Sports Science.**

Review of current research and research techniques in the biomechanics of exercise and sport science. Students will develop skills in reviewing, planning, and conducting biomechanical research.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5310. Cardiopulmonary Exercise Physiology.**

The course will provide students with a thorough understanding of the structure, function, neural mechanisms, and integrated responses of the human cardiopulmonary system to acute and chronic exercise. In addition, basic cardiopulmonary pathology, pharmacology, and electrocardiography will be introduced.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5311. Applied Neuromuscular and Skeletal Muscle Physiology.**

The course will provide students with a thorough understanding of the structure and function of neuromuscular and skeletal muscle physiology. This course will examine mechanisms that regulate skeletal muscle force production and human performance in response to acute and chronic exercise. In addition, advanced laboratory techniques will be introduced.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5312. Applied Exercise Metabolism.**

This course will provide students a thorough understanding of exercise metabolism. Students will develop advanced knowledge of the influence of various environmental and physiological factors on metabolism during exercise and the impact on physical performance and recovery. Students will also examine the relationships between metabolic factors and chronic diseases.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5313. Proprioception and Neuromuscular Control in Rehabilitation.**

This course provides for an advanced study of the concepts, theories, and current research related to proprioception and neuromuscular control as applied to the prevention, diagnosis, and clinical management of sport-related musculoskeletal injuries, neuromuscular disease, and concussions. Prerequisite: Department approval.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5314. Biomechanics of Musculoskeletal Injury.**

This course focuses on the application of biomechanical principles to the pathoetiology, diagnosis, and physiological capacity for healing of injuries to bone, ligament, tendon, cartilage, and other human tissues, with an emphasis on current injury research. Prerequisite: Department approval.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5317. Exercise Physiology.**

This leveling course provides an overview of the acute and chronic physiological responses to exercise. Emphasis is on muscle bioenergetics, muscle contractile properties, optimizing human performance through training and supplementation, as well as cardiopulmonary and endocrine responses to exercise. This course does not earn graduate degree credit. Prerequisite: BIO 2430 or equivalent. Corequisite: ESS 5117.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Course Attribute(s):** Exclude from Graduate GPA|Lab Required|Leveling

**Grade Mode:** Leveling/Assistantships

**ESS 5320. Biomechanics.**

This leveling course provides an introduction to the mechanical foundations of anatomical function and human movement. Qualitative and quantitative biomechanical analyses of human movement are introduced to inform the prescription of technique, equipment, and training interventions. This course does not earn graduate degree credit. Prerequisite: BIO 2430 or equivalent with a grade of "D" or better.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Course Attribute(s):** Exclude from Graduate GPA|Leveling

**Grade Mode:** Leveling/Assistantships

**ESS 5322. Inclusion and Diversity in Physical Activity and Sport.**

This course is designed to prepare physical activity and sport educators with knowledge, skills, and strategies to create inclusive learning environments. Culturally responsive teaching strategies that best accommodate the individual needs of children, adolescents, and adults, with diverse ethnic, racial, cultural, socio-economic, physical, and cognitive needs will be emphasized. (MULT).

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Course Attribute(s):** Multicultural Content

**Grade Mode:** Standard Letter

**ESS 5327. Application of Strength and Conditioning Principles.**

Strength and conditioning programming techniques will be the focus, including appropriate assessment and exercise prescription for improved sport performance and injury prevention. This course will include both classroom instruction and hands-on experience utilizing advanced technologies and traditional and non-traditional equipment in the field of strength and conditioning. This course will also cover methods of evaluating athletic abilities to monitor progress of training that will guide exercise prescription. Prerequisite: ESS 5307 with a grade of "C" or better.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5328. Principles of Endurance Training.**

This course explores and critiques both established and novel exercise testing and training practices for athletes competing in endurance sports. Emphasis is on demonstrating an ability to develop testing and training procedures using evidence-based methods for endurance athletes.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5344. Science of Sport Coaching and Teaching.**

This course is designed to enhance instructional skills and leadership skills for professionals working in sport, physical fitness, and community settings. Students will learn to incorporate evidence-based instructional practices to enhance their professional skills. Students will be able to apply course concepts to implement effective coaching pedagogy in diverse settings.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5346. Research Methods in Health and Human Performance.**

A study of research methods related to techniques for searching the professional research literature, understanding, planning, and conducting professional research projects, as well as development of skills for writing research proposals related to human performance.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5347. Independent Study in Exercise Science.**

The course allows students to receive individualized instruction while working on a professional project with a supervising faculty member. This course will require students to enhance their writing, research, teaching, and/or presentation skills. Repeatable once for credit.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5354. Positive Youth Development Through Sport & Physical Activity.**

This course is designed to provide sport educators with theory, research, and application strategies to implement developmentally appropriate sports programs for youth participants. Social, psychological, pedagogical, philosophical, and physical variables impacting youth in sport are examined. Emphasis is placed on promoting positive youth development by applying evidence-based practices.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5355. Psychosocial Aspects of Coaching High-Level Sport.**

This course is designed to provide sport educators with theory, research, and practical strategies to implement developmentally appropriate sports programs for high-level athletes. Psychological, social, and physical aspects related to athletes' success and well-being are examined.

Research on coaching effectiveness is also explored with emphasis on applying evidence-based practices.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5356. Applied Statistics in Health and Human Performance.**

A study of quantitative statistical methods for planning and conducting experimental and correlational research, as well as techniques for statistical data analysis and interpretation applicable to health and human performance.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5357. Water Safety Instruction for Service Learning.**

This course is designed for students to obtain the Red Cross Water Safety Instruction (WSI) certification, and learn how to teach using a Mastery Motivational Climate/TARGET approach. More than half of the semester will involve providing swim lessons to students grades K-6 from a San Marcos school. Students must be able to perform the following skills: front crawl, back crawl, breaststroke, elementary backstroke and sidestroke for 25 yards; butterfly for 15 yards; back float and tread water for 1 minute. Students with a current WSI certification will be exempt from the required WSI lab at the beginning of the semester.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5398. Internship in Exercise and Sports Science.**

This 240-hour internship provides students with work-related experience with children, adults, older individuals, or athletes in exercise settings. Students are provided an opportunity to prescribe and supervise age- and fitness-appropriate exercise programs and perform exercise tests. Prerequisite: ESS 5306 with a grade of "C" or better.

**3 Credit Hours. 0 Lecture Contact Hours. 20 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5399A. Thesis.**

This course represents a student's initial thesis enrollment. No thesis course credit is awarded until the student has completed the entire thesis required in ESS 5399B. Prerequisites: ESS 5346 and ESS 5356 all with a grade of "C" or better.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Credit/No Credit

**ESS 5399B. Thesis.**

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Credit/No Credit

**ESS 5599B. Thesis.**

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

**5 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Credit/No Credit

**ESS 5698. Internship in Exercise and Sports Science.**

This full-time internship provides students with a minimum of 480 hours of field experience. Students will work with children, adults, older individuals, or athletes in exercise or health care settings, and prescribe and supervise age and fitness appropriate exercise programs and perform comprehensive health-related assessments.

**6 Credit Hours. 0 Lecture Contact Hours. 40 Lab Contact Hours.**

**Grade Mode:** Standard Letter

**ESS 5999B. Thesis.**

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

**9 Credit Hours. 9 Lecture Contact Hours. 0 Lab Contact Hours.**

**Grade Mode:** Credit/No Credit